FIVE NEW GRASSES FROM COLOMBIA

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The new species herein described, of *Sporobolus, Calamagrostis,* and *Agrostis,* are based on recent collections of J. Cuatrecasas and H. García-Barriga, and the new *Panicum* on collections of F. W. Pennell and E. P. Killip, and of H. García-Barriga. The new *Isachne* was first collected in 1922 by F. W. Pennell and E. P. Killip in the Cauca Valley and has since been found a number of times in adjoining Departments.

Sporobolus bogotensis Swallen & García, sp. nov.

Perennis 30-45 cm. altus; culmi graciles, erecti, glabri, vaginae internodiis longiores, glabrae marginibus papilloso-ciliatis; ligula dense ciliata, 0,3 mm. longa; laminae inferiores 4-8 cm. longae, 2 - 2,5 mm. latae, erectae, supra valde nervosae, scabrae, infra sparse pilosae vel papilloso-pilosae, culmorum laminae reductae; paniculae 6-7 cm. longae, 2-3 cm. latae, erectae, pyramidatae, ramis solitariis patentibus ad basim nudis, glabris, inferioribus 1-2 cm. longis; spiculae 2,8 - 3,2 mm. longae, appresae, pedicellis glabris 0,5 - 1 mm. longis; gluma prima 1,5 - 2 mm. longa, angusta, acuta, glabra; gluma secunda et lemma aequalia, glabra, lucida; palea obtusa lemmate paulo brevior, carinis approximatis late alatis; antherae 2 mm. longae.

Perenial, 30-45 cm. high; culms slender, erect, glabrous; sheaths all longer than the internodes, rounded, glabrous on the back, the margins papillose-ciliate with long slender hairs; ligule densely ciliate, 0,3 mm. long; basal blades 4-8 cm. long, 2-2,5 mm. wide, erect, the upper surface strongly nerved, scabrous, the lower sparsely pilose or papillose-pilose with long spreading hairs, the culm blades greatly reduced, the uppermost less than 5 mm. long; panicles 6-7 cm. long, 2-3 cm. wide, erect, narrowly pyramidal, the branches solitary, finally stiffly spreading, naked toward the base, glabrous, the lowermost 1-2 cm. long; spikelets 2,8-3,2 mm. long, appresed, plumbeous, slightly tinged with purple, the pedicels glabrous, 0,5-1 mm. long; first glume

1,5-2 mm. long, rather narrow, acute, glabrous; second glume and lemma equal, similar, smooth and shining; palea obtuse, a little shorter than the lemma, the keels approximate, broadly winged; anthers 2 mm. long, violet-purple.

Dept. Cundinamarca: Macizo de Bogotá, Sierra de Siete Picos, 2900-3100 m. alt., June 28, 1939, *J. Cuatrecasas 5680* (type, U. S. Nat. Herb.; duplicate type in Herb. Nac. Colomb.).

Calamagrostis boyacensis Swallen & García, sp. nov.

Perennis 30-55 cm. alta; culmi glabri, erecti, basi decumbentes; vaginae internodiis longiores, glabrae, inferiores tenues, brunnescentes; ligula 10-20 mm. longa, acuminata, hyalina; laminae 10-25 cm. longae, 2-3 mm. latae, planae vel involutae, glabrae, supra valde nervosae; paniculae 8-10 cm. longae, densae, ramis 3-5 cm. longis, scabris, appressis, ad basim floriferis; spiculae brevipedicellatae, pedicellis teretibus, glabris vel sparse scabris; glumae 6 mm. longae, angustae, acuminatae, glabrae; lemma 3-3,5 mm. longum, minute dentatum, glabrum, lucidum, pilis calorum 2-3 mm. longis; rachilla 1,5-1,7 mm. longa, ad basim dense pilosa pilis lemmate longioribus; arista 6-7 mm. longa, supra basim lemmatos 1/3 excurrens; antherae 1 mm. longae.

Perennial, 30-55 cm. high; culms erect from a decumbent base, glabrous; sheaths all longer than the internodes, rather loose, glabrous, the lower ones thin, reddish brown and becoming fibrous as in *Festuca rubra L.*; ligule 10-20 mm. long, acuminate, thin, hyaline; blades 10-25 cm. long, 2-3 mm. wide, flat or loosely involute, rather firm, glabrous, strongly nerved on the upper surface; panicle 8-10 cm. long, dense, tinged with purple, the branches 3-5 cm. long, scabrous, appressed or somewhat spreading, some of them floriferous to the base; spikelets short-pedicellate, the pedicels terete, glabrous or sparsely scabrous; glumes 6 mm. long, narrow, acuminate, glabrous; lemma 3-3,5 mm. long, minutely erose-dentate, glabrous, shining, the callus hairs dense, 2-3 mm. long; rachilla 1,5-1,7 mm. long, desenly hairy to the base, the hairs slightly longer than the lemma; awn 6-7 mm. long, slender, straight, inserted 1 mm. above the base of the lemma, slightly divergent; anthers 1 mm. long.

Dept. Boyacá: Cordillera Oriental, Nevado del Cocuy, alto valle de Las Lagunillas, alt. 4000-4300 m., Sep. 12, 1938, *J. Cuatrecasas and García-B. 1461* (type, U. S. Nat. Herb., duplicate in Herb. Nac. Colombiano).

Agrostis boyacensis Swallen & García, sp. nov.

Perennis 6-22 cm. alta culmis erectis glabris dense caespitosis; vaginae internodiis longiores, glabrae vel minute scabrae; ligula 1,5-2 mm. longa, tenuis, obtusa; laminae 3-5 cm. longae, 1,5-2 mm. latae, firmae, erectae, scabrae supra valde nervosae; paniculae 3-5 cm. longae ramis adscendentibus vel appressis, ad basim nudis, inferioribus ca. 1,5 cm. longis; spiculae 2,5 mm. longae, purpurascentes; glumae acuminatae, carina scabra; secunda quam prima paulo breviore; lemma 1,5 mm. longum, obtusum non aristatum; palea obsoleta; antherae 1 mm. longae.

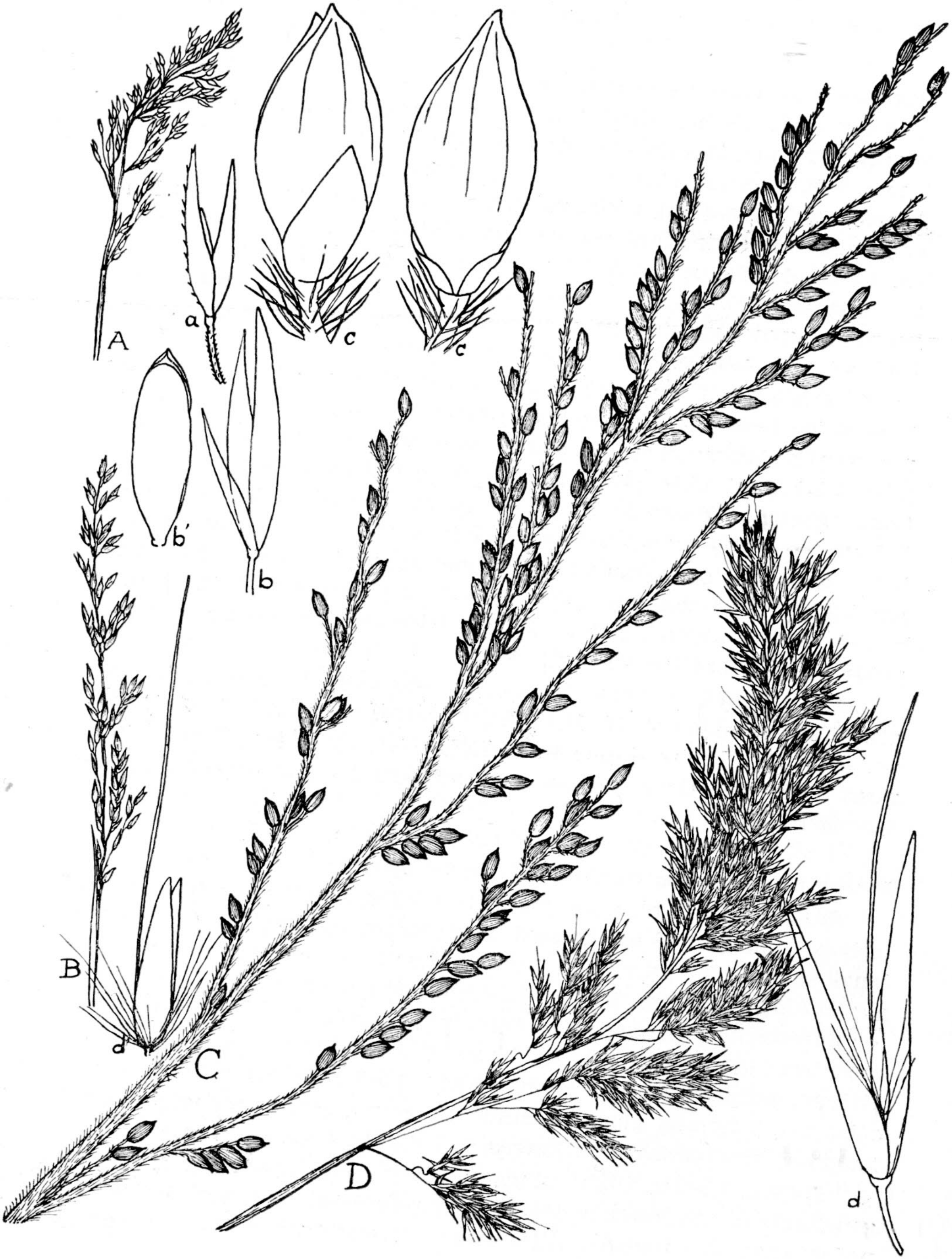
Perennial, 6-22 cm. high; culms erect, glabrous; leaves crowded toward the base, the sheaths longer than the internodes, glabrous to minutely scabrous; ligule 1,5-2 mm. long, thin, obtuse; blades 3-5 cm. long, 1,5-2 mm. wide, erect, firm, flat or loosely rolled, finely scabrous, strongly nerved on the upper surface; panicles long-exserted, 3-5 cm. long, the branches ascending to appresed, naked below, scabrous, the lower ones about 1,5 cm. long; spikelets 2,5 mm. long, purple, the glumes acuminate, strongly scabrous on the keel, the second a little shorter than the first; lemma 1,5 mm. long, obtuse, awnless; palea absolete; anthers 1 mm. long.

Dept. Boyacá: Nevado del Cocuy, alto valle de Las Lagunillas, alt. 4000-4300 m., Sept. 12, 1938, *J. Cuatrecasas & García-B. 1459* (type, U. S. Nat. Herb.; duplicate in Herb. Nac. Colomb.); *1465;* - between Soatá and Cocuy, Páramo del alto del Escobal, *Cuatrecasas & García 1767-b.*

Panicum albicomum Swallen & García, sp. nov.

Annuum, 1,6-2 m. altum; culmi graciles, erecti vel nodiis inferioribus geniculati, dense et molliter pubescentes; vaginae internodiis longiores vel breviores, dense pubescentes; ligula ciliata, 0,5 mm. longa; laminae 12-25 cm. longae, 1,2-2 cm. latae, acuminatae, dense molliter pubescentes; paniculae 23 cm. longae ramis adscendentibus pubescentibus usque ad 10 cm. longis; spiculae 4-5 mm. longae, appressae; glabrae, purpurascentes; gluma prima 1,5-2 mm. longa, obtusa vel subacuta, 3-nervis; gluma secunda et lemma sterile aequalia fructu longiora; fructus 3,5 mm. longus, apiculatus, transverse rugosus.

Annual, 1,6-2 m. high; culms relatively slender, erect or somewhat geniculate at the lower nodes, densely pubescent or velvety below the nodes; sheaths rounded, a little longer or shorter than the internodes,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densely pubescent, especially at the base toward the summit; ligule ciliate, 0,5 mm. long; blades 12-25 cm. long, 1,2-2 cm. wide, acuminate, densely pubescent on both surfaces; panicles 23 cm. long, the axis and branches stiffly ascending, mostly rather distant, solitary branches lanate-pubescent, mixed with long. stiff spreading hairs with enlarged tips, the lowest branch about 10 cm. long; spikelets 4-5 mm. long, mostly on short branchlets appressed on one side of the branches, glabrous, purple; first glume 1,5-2 mm. long, obtuse or subacute, 3-nerved, clasping; second glume and sterile lemma equal, abruptly pointed beyond the fruit, the palea of the lemma well developed enclosing a staminate flower; fruit 3,5 mm. long, elliptic, apiculate, transversely rugose.

Dept. del Cauca: "El Ramal" to Rio Sucio, west of Popayán, Cauca Valley, prairie, 1600-1900 m. alt. July 3, 1922, *Pennell & Killip 8129* (type, U. S. Nat. Herb.); El Tambo, alt. 1745 m. *H. García-B. 4426.*

This species resembles and is closely related to *Panicum molle* Swartz which is smaller, less than 1 m. high with pubescent spikelets 3,5-4 mm. long, the first glume of which is acute, half to three fourths as long as the spikelet.

Isachne ligulata Swallen, sp. nov.

Planta plusminusve scandens usque ad 10 m. longa; culmi multiplo ramosi, glabri; vaginae papilloso-hispidae vel subglabrae marginibus papilloso-hispido-ciliatis; ligula 2-3 mm. longa; laminae ramorum 5-14 cm. longae, 4-12 mm. latae, planae, acuminatae, scabrae et sparse pilosae marginibus albis; paniculae 5-10 cm. longae, 3-7 cm. latae, ramis late adscendentibus et ramulis divergentibus, in axillis pulvinatis; spiculae 2,3-2,6 mm. longae, appressae; spiculorum pedi-

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KEY TO DRAWINGS ON PAGE 304

Agrostis boyacensis, *A*: Inflorescence (×1), *a*: spikelet (×10).

Sporobolus bogotensis, *B*: Inflorescence (×1); *b* and *b'*: spikelets (×10).

Panicum albicomum, *C*: Inflorescence (×1); *c* and *c'*: spikelets (×10).

Calamagrostis boyacensis, *D*: Inflorescence (×1); *d* and *d'*: spikelets (×10).

Drawn from duplicate type specimens by Inés de Zulueta.

celli laterales 0,5-1,5 mm. longi; glumae aequales, 2-2,2 mm. longae, obtusae; fructus glabri, primus 2,2 mm. longus, anguste-lanceolatus, secundus 1,8 mm. longus, ellipticus.

Clambering, vine as much as 10 m. long; culms somewhat woody, but rather slender, with numerous flowering branches, glabrous; sheaths rounded, papillose-hispid to nearly glabrous on the back, the margins rather prominently papillose-hispid-ciliate; ligule 2-3 mm. long, composed of a dense line of rather stiff hairs; blades of the flowering branches 5-14 cm. long, 4-12 mm. wide, flat, acuminate, firm, scabrous and sparsely pilose, with prominent thick white margins; panicles 5-10 cm. long, 3-7 cm. wide, the branches stiffly but rather widely ascending to spreading, the branches and branchlets strongly divergent with prominent pulvini in the axils; spikelets 2,3-2,6 mm. long; glumes equal, 2-2,2 mm. long, obtuse, rather narrow, exposing the fruits; fruits glabrous, the first 2,2 mm. long, narrowly lanceolate, acutish, the second 1,8 mm. long, elliptic, with a few hairs at the base.

Dept. Caldas: Salento, edge of forest, 2100-2500 m. alt. July 25-31, 1922 *F. W Pennell 8880, 8760*. Dept. Cauca: "La Galleria", Micay Valley, *Pennell 8008*; Cuatro Esquinas, *Pennell & Killip 6343* (type, U. S. Nat. Herb.); between Carpinterías and Mina de Munchique, *Pérez-Arbeláez & Cuatrecasas 6291*. Dept. Antioquia: La Sierra, north of Medellín, *Archer 1344*. Dept. Cundinamarca: Salto de Tequendama, *Cuatrecasas 165*. Dept. Santander: Charta, *Killip & Smith 19013*.